ACTIVITY: Maintenance of Collection Facilities and Appurtenances	CP – 18

HISTORIC
CITY OF
FRANKLIN

Targeted Constituents				
! Significant Benefit	™ Partial Benefit	" Low or Unknown Benefit		
! Sediment	! Heavy Metals	! Floatable Materials	! Oxygen Demanding Substances	
" Nutrients	" Toxic Materials	! Oil & Grease	! Bacteria & Viruses	" Construction Wastes

Implementation Requirements				
! High	™ Medium	" Low		
! Capital Costs	! O & M Costs	! Staff	™ Admin	™ Training

Description

Maintain catch basins and stormwater inlets on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, and restore the catch basins' sediment trapping capacity. A catch basin is distinguished from a stormwater inlet by having at its base a sediment sump designed to catch and retain sediments below the overflow point.

Proper maintenance and siltation removal is required on both a routine and corrective basis to promote effective stormwater pollutant removal efficiencies for wet/dry detention pond and infiltration devices. This management practice is likely to create a significant reduction in sediment, heavy metals, floatable materials, oxygen demanding substances, oil and grease, and bacteria and viruses.

Approach

Regular maintenance of catch basins and inlets is necessary to ensure their proper functioning. Clogged catch basins are not only useless but may act as a source of sediments and pollutants.

In the same way, if sediment traps and basins, dry detention and wet detention ponds are not routinely cleaned and dredged then they can act as pollutant sources under certain storm conditions. Proper maintenance of detention pond and infiltration device systems is a source control procedure necessary to ensure effective stormwater pollutant removal efficiency. Routine and corrective maintenance needs should be monitored after storms for proper function of wet ponds, detention basins, and infiltration device structures. Proper maintenance of these structures requires periodic silt/sediment and trash debris removal, as well as timely vegetation control. They should be cleaned out when it is recognized that they have filled from 1/5 to 1/3 of their pollutant (sediment) storage capacity.

More frequent sediment removal is recommended, especially in areas where roadway drainage provides a significant runoff component. High accumulation rates of heavy

metal contaminants (lead, zinc, and copper) have been identified in these BMP structures adjacent to high traffic areas. In order to avoid situations of hazardous waste disposal, sediment dredging and excavation should be given frequent priority.

Clean catch basins in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.

Catch basins should be inspected weekly and cleaned if necessary to reduce the possibility of sediment and other pollutants from leaving the construction site. This should be checked after all areas have been stabilized and at the end of the project.

To prevent sediment and pollutant build-up in on-site catch basins, be sure to follow the guidelines set out in Temporary Inlet Protection, TCP-24.

Maintain a clean work site, free of litter that can build-up and clog catch basins and downstream conveyance systems.

Do not allow dumping into catch basins and stormwater inlets.

Clean accumulated sediment and silt out of pre-treatment inlets when they have reached 1/3 of their capture volume.

Removal of accumulated paper, trash, and debris should occur weekly or as needed to prevent clogging of control devices throughout the construction project.

Vegetation growth in stormwater quality devices should not be allowed to exceed 24 inches (0.61 m) in height.

Mow the slopes periodically and check for clogging, erosion and tree growth on the embankment.

Corrective maintenance may require more frequent attention (as required).

Maintenance of accurate logs to evaluate materials removed and improvements made.

Requirements

Cost Considerations
- Frequent sediment removal can be labor intensive and costly. However, properly designed ponds allow for easy removal of accumulated sediments at relatively minor cost.
- Cost of waste material for transport and disposal.

Maintenance crews may require access vehicles, dump trucks, bulldozers, and dredging/excavation equipment. Manual use equipment (such as rakes, shovels, sickles, and machetes) may suffice for maintenance of dry detention ponds and infiltration device systems. Staffing will require a minimum of two (2) person crews for health and safety reasons and effective structural BMP maintenance.

Training
- Crews must be trained in proper maintenance, including record keeping and

disposal.
- Appropriate excavation and maintenance procedures.
- Proper waste disposal procedures.
- Channel maintenance and use of heavy equipment.
- Identification and handling of hazardous materials/wastes.

Application of this technique in "blue line" streams requires permits from the U.S. Army Corps of Engineers, Tennessee Department of Environment and Conservation, and the Tennessee Valley Authority.

Limitations

Wet detention pond dredging can produce slurried waste that often exceeds the requirements of many landfills. See CP-02: Dewatering Operations.

Frequent sediment removal is labor and cost intensive.

If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation by TDEC.

Primary References

California Storm Water Best Management Practice Handbooks, Municipal Handbook, CDM et.al. for the California SWQTF, 1993.

Caltrans Storm Water Quality Handbooks, CDM et.al. for the California Department of Transportation, 1997.

Subordinate References

Best Management Practices for Storm Drainage Facilities (Draft), Maintenance Subcommittee, Alameda County Urban Runoff Clean Water Program, 1992.

Environmental Criteria Manual, Design Guidelines for Water Quality Control, City of Austin, Texas, 1989.

Ferguson, B.K. 1991. *Urban Stream Reclamation* p. 324-328, Journal of Soil and Water Conservation.

Florida Development Manual: A Guide to Sound Land and Water Management, Storm water and Erosion and Sediment Control BMPs for Developing Areas, Florida Department of Environmental Regulation, 1988.

Protecting Water Quality in Urban Areas: Best Management Practices for Minnesota, Minnesota Pollution Control Agency, 1989.

Stormwater Management Manual for the Puget Sound Basin (The Technical Manual): Volume IV – Urban Land Use BMPs, Washington State Department of Ecology, 1992.

Street Cleaning Practice, American Public Works Association, 1978.